

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A process for the preparation of polyisobutylphenol-containing Mannich adducts by, comprising:

a) alkylation of alkylating a phenol with at least one polyisobutene having more than 70 mol % of vinylidene double bonds and a number average molecular weight of from 300 to 3000 at below about 50°C in the presence of an alkylation catalyst;

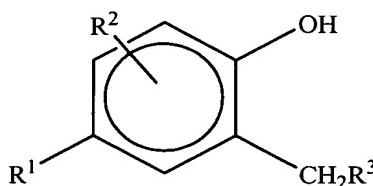
b) reaction of reacting the reaction product from a) with formaldehyde, an oligomer or a polymer of formaldehyde and at least one amine which has at least one secondary amino function and no primary amino function; or

e) reaction of the reaction product from a) with at least one adduct of at least one amine which has at least one secondary or primary amino function and formaldehyde, an oligomer of formaldehyde, a polymer of formaldehyde or a formaldehyde equivalent.

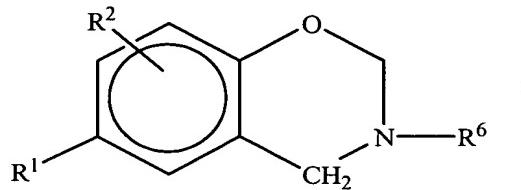
Claim 2 (Canceled).

Claim 3 (Canceled).

Claim 4 (Currently Amended): The process as claimed in Claim 1, wherein an adduct mixture is obtained which comprises at least 40 mol% of compounds of the one or more of formula Ia and/or and Ib,



(Ia)



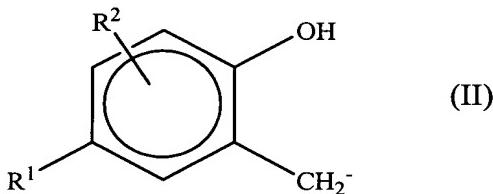
(Ib)

where

R^1 is a terminally bonded polyisobut enyl radical,

R^2 is H, C₁- to C₂₀-alkyl, C₁- to C₂₀-alkoxy, hydroxyl, a polyalkylenyl radical or CH₂NR⁴R⁵, where R⁴ and R⁵ have the meanings stated below, and

R^3 is NR⁴R⁵, where R⁴ and R⁵, independently of one another, are H, C₁- to C₂₀-alkyl, C₃- to C₈-cycloalkyl and C₁- to C₂₀-alkoxy radicals which may be interrupted and/or substituted by N and O heteroatoms, and phenol radicals of the formula II



where R¹ and R² are as defined above;

with the proviso that R⁴ and R⁵ are not simultaneously H or phenol radicals of the formula II; or R⁴ and R⁵, together with the N atom to which they are bonded, form a 5-, 6- or 7-membered cyclic structure which has one or two N and O heteroatoms and may be substituted by one, two or three C₁- to C₆-alkyl radicals; and

R^6 is a radical R⁴ or R⁵ other than H.

Claim 5 (Previously Presented): The process as claimed in Claim 1, wherein a Mannich adduct having a polydispersity of from 1.1 to 3.5 is obtained.

Claim 6 (Canceled).

Claim 7 (Currently Amended): The process as claimed in Claim 1, wherein further comprising:

fractionating the reaction mixture from b) or e) is fractionated by column chromatography over an acidic stationary phase by multistage elution with

- at least one hydrocarbon and then
- at least one basic alcohol/water mixture.

Claim 8 (Previously Presented): The process as claimed in claim 7, wherein the basic alcohol/water mixture is a mixture of

- a) from 75 to 99.5% by weight of at least one C₂- to C₄-alcohol,
- b) from 0.4 to 24.4% by weight of water, and
- c) from 0.1 to 15% by weight of at least one amine which is volatile at room temperature.

Claim 9 (Previously Presented): The process as claimed in Claim 1, wherein an adduct mixture obtained includes from 0 to 20 mol% of polyisobutenyphenols from reaction step a) which are not reacted further.

Claim 10 (Previously Presented): A Mannich adduct obtained by

- a) alkylation of a phenol with polyisobutene having more than 70 mol % of vinylidene double bonds and a number average molecular weight of from 300 to 3000 at below about 50°C in the presence of an alkylation catalyst;
- b) reaction of the reaction product from a) with formaldehyde, an oligomer or a polymer of formaldehyde and at least one amine which has at least one secondary amino function and no primary amino function.

Claim 11 (Canceled).

Claim 12 (Currently Amended): An additive concentrate ~~containing, in addition,~~
comprising:

one or more to conventional additive components[[],] and at least one Mannich adduct
as claimed in claim 10 in ~~amounts~~ an amount of from 0.1 to 99.9% by weight.

Claim 13 (Original): A fuel composition containing a main amount of a liquid hydrocarbon fuel and an amount, having detergent activity, of at least one adduct as claimed in claim 10.

Claim 14 (Original): A lubricant composition containing a main amount of a liquid, semisolid or solid lubricant and an amount, having detergent activity, of at least one adduct as claimed in claim 10.

Claim 15 (Canceled).

Claim 16 (Currently Amended): A method of preparing a detergetized fuel or lubricant comprising mixing:

the Mannich adduct of Claim 10 with a fuel or a lubricant.

Claim 17 (Currently Amended): A method of preparing a detergetized gasoline or diesel fuel comprising:

mixing the Mannich adduct of Claim 10 with a gasoline or a diesel fuel.

Claim 18 (Previously Presented): The process as claimed in Claim 1, wherein an adduct mixture obtained includes from 1-15 mol% of polyisobutarylphenols from reaction step a) which are not reacted further.

Claim 19 (Currently Amended): An additive concentrate ~~containing, in addition to~~ comprising: one or more conventional additive components~~[,]~~ and at least one Mannich adduct as claimed in Claim 10 in ~~amounts~~ an amount of from 0.5-80% by weight.

Claim 20 (New): A process for the preparation of polyisobutetylphenol-containing Mannich adducts, comprising:

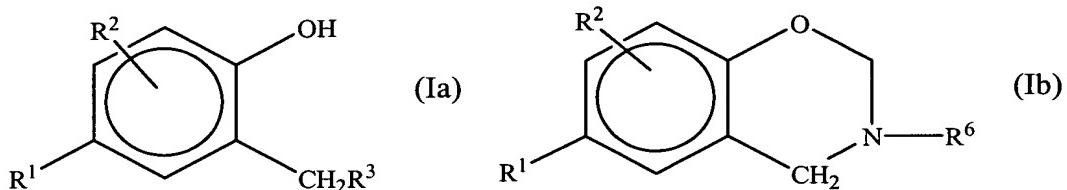
- a) alkylating a phenol with at least one polyisobutene having more than 70 mol % of vinylidene double bonds and a number average molecular weight of from 300 to 3000 at below about 50°C in the presence of an alkylation catalyst; and
- c) reacting the reaction product from a) with at least one adduct of at least one amine which has at least one secondary or primary amino function and formaldehyde, an oligomer of formaldehyde, a polymer of formaldehyde or a formaldehyde equivalent.

Claim 21 (New) The process as claimed in claim 20, wherein the amine is at least one selected from the group consisting of 3-(dimethylamino)-n-propylamine, di[3-(dimethylamino)-n-propyl]amine, dimethylamine, diethylamine, di-n-propylamine and morpholine.

Claim 22 (New): The process as claimed in claim 20, wherein the adduct is an aminal of formaldehyde with a secondary amine selected from the group consisting of di-C₁-C₈-alkylamines whose alkyl groups may be substituted by an N(C₁-C₄-alkyl)₂ group and

cyclic amines which have 4 to 6 carbon atoms and whose cyclic structure may be interrupted by one or more of O and a N-C₁-C₄-alkyl group.

Claim 23 (New): The process as claimed in Claim 20, wherein an adduct mixture is obtained which comprises at least 40 mol% of compounds of one or more of formula Ia and Ib,

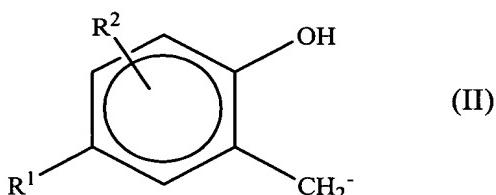


where

R¹ is a terminally bonded polyisobutetyl radical,

R^2 is H, C₁- to C₂₀-alkyl, C₁- to C₂₀-alkoxy, hydroxyl, a polyalkylenyl radical or CH₂NR⁴R⁵, where R⁴ and R⁵ have the meanings stated below, and

R^3 is NR⁴R⁵, where R⁴ and R⁵, independently of one another, are H, C₁- to C₂₀-alkyl, C₃- to C₈-cycloalkyl and C₁- to C₂₀-alkoxy radicals which may be interrupted and/or substituted by N and O heteroatoms, and phenol radicals of the formula II



where R^1 and R^2 are as defined above;

with the proviso that R⁴ and R⁵ are not simultaneously H or phenol radicals of the formula II; or R⁴ and R⁵, together with the N atom to which they are bonded, form a 5-, 6- or 7-membered cyclic structure which has one or two N and O heteroatoms and may be substituted by one, two or three C₁- to C₆-alkyl radicals; and

R^6 is a radical R^4 or R^5 other than H.

Claim 24 (New): The process as claimed in Claim 20, wherein a Mannich adduct having a polydispersity of from 1.1 to 3.5 is obtained.

Claim 25 (New): The process as claimed in Claim 20, wherein the reaction product from a) is reacted with at least one adduct of an amine and at least one selected from the group consisting of formaldehyde, an oligomer of formaldehyde, a polymer of formaldehyde and a formaldehyde equivalent by reacting the two reactants for at least 15 minutes at above +15°C.

Claim 26 (New): The process as claimed in Claim 20, further comprising:
fractionating the reaction mixture from c) by column chromatography over an acidic stationary phase by multistage elution with

- at least one hydrocarbon and then
- at least one basic alcohol/water mixture.

Claim 27 (New): The process as claimed in claim 26, wherein the basic alcohol/water mixture is a mixture of

- a) from 75 to 99.5% by weight of at least one C₂- to C₄-alcohol,
- b) from 0.4 to 24.4% by weight of water, and
- c) from 0.1 to 15% by weight of at least one amine which is volatile at room temperature.

Claim 28 (New): The process as claimed in Claim 20, wherein an adduct mixture obtained includes from 0 to 20 mol% of polyisobutlenylphenols from reaction step a) which are not reacted further.

Claim 29 (New): The process as claimed in Claim 20, wherein an adduct mixture obtained includes from 1-15 mol% of polyisobutenylphenols from a) which are not reacted further.

BASIS FOR THE AMENDMENT

Claims 1, 4-5, 7-10, 12-14 and 16-29 are active in the present application. Claims 2, 3, 6, 11 and 15 have been canceled. Independent Claim 1 has been amended for matters of form. Claims 4, 7, 12 and 16-19 have been amended for matters of form. The amendment to the dependent claims to change matters of form is not intended to further limit the claimed subject matter. Claims 20-29 are new claims. Support for the new claims is found in the original claims. No new matter is believed to have been added by this amendment.